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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/691,637	10/24/2003	Satoshi Tokuda	SUT-0229	7634
23353	7590	11/06/2006	EXAMINER	
RADER FISHMAN & GRAUER PLLC LION BUILDING 1233 20TH STREET N.W., SUITE 501 WASHINGTON, DC 20036			BAKER, DAVID S	
			ART UNIT	PAPER NUMBER
			2884	

DATE MAILED: 11/06/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 10/691,637	Applicant(s) TOKUDA ET AL.	
	Examiner David S. Baker	Art Unit 2884	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☒ Claim(s) 20 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. The amendment filed on 12 September 2006 has been accepted and entered.

Claim Objections

2. Claims 4, 8, and 9 objected to because of the following informalities: Claims 4, 8, and 9 claim a radiation detector apparatus. However, claims 4, 8, and 9 contain method of manufacture, or process, limitations within the claims' bodies. The method limitations do not further limit the structural aspect of the radiation detector and are therefore not limiting. For examination purposes, the examiner has examined the structural features that are the end result of the method limitations rather than examining the method limitations themselves. Appropriate correction is required.
3. Claims 2-3, 5-7, 11-12, and 14-16 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

Regarding claims 2-3 and 5-7, these claims contain method of manufacture, or process, limitations within the claims' bodies. The method limitations do not further limit the structural aspect of the radiation detector and are therefore not limiting. For examination purposes, the examiner has examined the structural features that are the end result of the method limitations rather than examining the method limitations themselves. The balance of claims has been objected to as being based on an already objected to claim that is not further limiting. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. Claims 9 and 18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The balance of claims is rejected as being dependent upon an already rejected indefinite base claim.

5. Claim 9 recites the limitation "said source" and "said heat treatment" in paragraphs 5 and 8, respectively, of the claim. There is insufficient antecedent basis for this limitation in the claim. For examination purposes, the examiner has disregarded the antecedent terminology and read the claims as -- source -- and -- heat treatment --.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

7. Claims 1-2, 4, 8, 9, and 19 are rejected under 35 U.S.C. 102(b) as being anticipated by Agouridis (US Patent #4,243,885 A).

Regarding claims 1-2, 4, 8, 9, Agouridis discloses a radiation detector comprising: a detection layer formed of a polycrystalline film comprising CdTe that is doped with Cl (column 2 lines 19-32).

Regarding claim 19, Agouridis discloses a method of producing a radiation detector comprising forming a polycrystalline film layer of CdTe that is doped with Cl (column 2 lines 19-32).

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

10. Claims 3, 5, and 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agoiridis (US Patent #4,243,885 A) in view of McCandless (US Patent #6,251,701 B1).

Regarding claim 3, Agoiridis discloses all the claimed limitations except that a source is located at a position to form the film by vapor deposition or sublimation.

McCandless discloses that the detection layer is formed in the condition that the substrate and source are located at a position to form a film by vapor deposition (figure 2, column 3 lines 45-67, column 4 lines 1-15 and 46-54). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art for the substrate and source to be located at a position to form a film by vapor deposition. The motivation for

doing so would have been to decrease the cost and improve the efficiency of the process of forming the CdTe film by using vapor deposition.

Regarding claim 5, McCandless discloses that the detector is doped with Cl by conducting heat treatment in the condition that powder containing CdCl₂ is opposed to the detection layer (figure 2, column 3 lines 45-67, column 4 lines 1-15 and 46-54).

Regarding claims 6 and 7, McCandless discloses that the heat treatment is carried out under atmosphere containing H₂ kept at 1.3×10^{-3} to 1 atmospheric pressure (column 3 lines 45-67, column 4 lines 1-15 and 46-54).

11. Claims 10-11, 13, and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agoiridis (US Patent #4,243,885 A) in view of Schiebel (US Patent #5,396,072 A).

Regarding claims 10-11 and 17-18, Agoiridis discloses all the claimed limitations except a plurality of charge accumulation capacitors for accumulating charges from the detection layer and a switching matrix substrate including switching devices arranged in an array, wherein the switching devices read out charges of the plurality of charge accumulation capacitors. Schiebel discloses a plurality of charge accumulation capacitors (capacitors 2, figure 1) for accumulating charges (column 5 lines 67-68, column 6 lines 1-38) from the detection layer (photoconductive detection layer 32, figure 3b) and a switching matrix substrate including switching devices (switches 1, figure 1) arranged in an array (figure 1), wherein the switching devices read out charges of the plurality of charge accumulation capacitors (column 5 lines 67-68, column 6 lines 1-38). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to include a plurality of charge accumulation capacitors for accumulating

charges from the detection layer and a switching matrix substrate including switching devices arranged in an array, wherein the switching devices read out charges of the plurality of charge accumulation capacitors. The motivation for doing so would allow for a two dimensional representation of the radiation impingement due to the nature of the array resulting in an improved image of the radiation pattern.

Regarding claim 13, Agoiridis discloses all the claimed limitations except a switching matrix substrate including switching devices arranged in an array, wherein the switching devices read out charges of the plurality of charge accumulation capacitors. Schiebel discloses a switching matrix substrate including switching devices (switches 1, figure 1) arranged in an array (figure 1), wherein the switching devices read out charges of the plurality of charge accumulation capacitors (column 5 lines 67-68, column 6 lines 1-38). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to include a plurality of charge accumulation capacitors for accumulating charges from the detection layer and a switching matrix substrate including switching devices arranged in an array, wherein the switching devices read out charges of the plurality of charge accumulation capacitors. The motivation for doing so would allow for a two dimensional representation of the radiation impingement due to the nature of the array resulting in an improved image of the radiation pattern.

12. Claims 12 and 14-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Agoiridis (US Patent #4,243,885 A), McCandless (US Patent #6,251,701 B1), and further in view of Schiebel (US Patent #5,396,072 A).

Regarding claims 12 and 14-16, Agoiridis and McCandless disclose all the claimed limitations except a plurality of charge accumulation capacitors for accumulating charges from the detection layer and a switching matrix substrate including switching devices arranged in an array, wherein the switching devices read out charges of the plurality of charge accumulation capacitors. Schiebel discloses a plurality of charge accumulation capacitors (capacitors 2, figure 1) for accumulating charges (column 5 lines 67-68, column 6 lines 1-38) from the detection layer (photoconductive detection layer 32, figure 3b) and a switching matrix substrate including switching devices (switches 1, figure 1) arranged in an array (figure 1), wherein the switching devices read out charges of the plurality of charge accumulation capacitors (column 5 lines 67-68, column 6 lines 1-38). At the time the invention was made, it would have been obvious to a person of ordinary skill in the art to include a plurality of charge accumulation capacitors for accumulating charges from the detection layer and a switching matrix substrate including switching devices arranged in an array, wherein the switching devices read out charges of the plurality of charge accumulation capacitors. The motivation for doing so would allow for a two dimensional representation of the radiation impingement due to the nature of the array resulting in an improved image of the radiation pattern.

Allowable Subject Matter

13. Claim 20 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
14. The following is a statement of reasons for the indication of allowable subject matter:

Regarding claim 20, the prior art of record does not disclose or reasonably suggest a method for producing a radiation detector comprising the step of using, as a source, a mixture of at least one of CdTe, ZnTe, and CdZnTe and a second material including at least one of CdCl₂ or ZnCl₂. The prior art of record discloses the doping of a CdTe layer, but not by means of the mixed source. Prior art such as Izumi (US Patent #6,398,624 B1) actually teaches away from CVD or sublimation by suggesting the use of an aqueous solution of CdCl₂ to implant the Cl in to the CdTe layer.

Response to Arguments

15. Applicant's arguments filed 12 September 2006 have been fully considered but they are not persuasive.

Regarding the rejection under 35 U.S.C. §112, pertaining to the lack of antecedent basis in claim 9, the applicant's arguments can be interpreted as nonresponsive. Simply claiming that an antecedent basis has been established does not overcome the rejection. To clarify, claim 9 contains portions written in an alternative format. The examiner has read claim 9 to recite that the invention comprises one or more of parts A, B, or C, and further one or more of parts D, E, F, G, or H. The term "said source" occurs in part C. Since A, B, and C belong to a group written in an alternative format, part C may be chosen alone resulting in a lack of antecedent basis for the term "said source". The term "said heat treatment" occurs in part F. Since D, E, F, G, and H belong to a group written in an alternative format, part F may be chosen alone resulting in a lack of antecedent basis for the term "said heat treatment".

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16. Applicant's arguments with respect to claims 1-19 have been considered but are moot in view of the new ground(s) of rejection.

17. Applicant's arguments, see 11, filed 12 September 2006, with respect to claim 20 have been fully considered and are persuasive. The 35 U.S.C. 103(a) rejection of claim 20 has been withdrawn.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David S. Baker whose telephone number is (571) 272-6003. The examiner can normally be reached on MTWRF 9:30am-6:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (571) 272-2444. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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